



Spanish Harbour

Area in Recovery

Status of Beneficial Use Impairments

September 2010

Spanish Harbour is located on the North Channel of Lake Huron. The Area in Recovery covers the lower 52 km of the Spanish River, from the town of Espanola to the river mouth at the town of Spanish, and extends from the harbour area to the western end of Kirke and Green Islands in the Whalesback Channel. The Spanish River Delta Marsh is designated as a provincially significant wetland. The forestry industry is the largest employer in the area.

Environmental concerns in the Spanish Harbour Area in Recovery were linked to the impacts from the Espanola sewage treatment plant, past log-driving operations, effluent from the pulp and paper mill in Espanola (Domtar Inc. Eddy Specialty Papers; formerly E.B. Eddy Forest Products Ltd.), and discharges from past and ongoing mining, milling and smelting activities in the Sudbury area. The Vermilion River, which enters the Spanish River above Espanola, drains the Sudbury basin and carries contaminants from these and other sources into the Area in Recovery.



PARTNERSHIPS IN ENVIRONMENTAL PROTECTION

Spanish Harbour was designated an Area of Concern in 1987 under the Canada–United States Great Lakes Water Quality Agreement. Areas of Concern are sites on the Great Lakes system where environmental quality is significantly degraded and beneficial uses are impaired. Currently, there are 9 such designated areas on the Canadian side of the Great Lakes, 25 in the United States, and 5 that are shared by both countries. In each Area of Concern, government, community and industry partners are undertaking a coordinated effort to restore environmental quality and beneficial uses through a remedial action plan.

Remedial Action Plan Partners

Environment Canada and the Ontario Ministry of the Environment coordinate the development and implementation of the remedial action plans to protect and restore these Areas of Concern in Canada. Other partners in the cooperative effort in the Spanish Harbour Area in Recovery include (in alphabetical order) the Anishinabek/Ontario Fisheries Resource Centre, Fisheries and Oceans Canada, fishing and hunting associations, Friends of the Spanish River, local industry, the Ontario Ministry of Natural Resources, and the Sagamok Anishnawbek Fisheries Department.

Remedial Action Plan Process

The Great Lakes Water Quality Agreement requires that remedial action plans be developed and implemented in three stages:

Stage 1: Identifying the Environmental Challenges

In Stage 1, the governments of Canada and Ontario, working with community stakeholders, undertook an extensive program of research and monitoring to assess environmental quality and identify the causes of degradation in the Area of Concern. The *Stage 1 Remedial Action Plan Report*, summarizing the outcome of these efforts, was completed in 1993. The report identified nine environmental challenges needing to be addressed and known as *beneficial use impairments* in the remedial action plan process.

Stage 2: Planning and Implementing Remedial Actions

In Stage 2, the governments of Canada and Ontario, working with community stakeholders, undertook a detailed review of potential remedial actions to restore, protect and monitor environmental quality in the Area of Concern. The *Stage 2 Remedial Action Plan Report*, which identified recommended remedial actions, was completed in 1999. That same year, Spanish Harbour was the first Area of Concern to be recognized by the federal and provincial governments as an *Area in Recovery*. All recommended restoration activities had been completed. Of the original nine *beneficial use impairments*, six were restored through implementation of the remedial actions, and only three remained designated as *impaired*. Natural recovery was expected to mitigate these impairments over time. The status of the remaining three beneficial use impairments are described below in **Progress on Environmental Challenges**.

Stage 3: Monitoring Actions and Delisting of the Area of Concern

The *Stage 3 Remedial Action Plan Report* and delisting of Spanish Harbour as an Area of Concern will be undertaken when monitoring confirms that the environmental challenges have been addressed successfully through the remedial actions. As of September 2010, there is no estimate of when the delisting will occur.



PROGRESS ON ENVIRONMENTAL CHALLENGES

Spanish Harbour was the first Area of Concern to be identified as an Area in Recovery, in recognition that six of the original nine environmental challenges had been successfully addressed by the Remedial Action Plan partners by 1999. The remaining three environmental challenges are related to metal contaminants from past and ongoing mining operations in the Sudbury area, upstream of the Area of Concern. These mining sources are being addressed by provincial programs outside the Area of Concern. A modelling study undertaken for the Remedial Action Plan partners concluded that it could take up to 40 years for the reduction of this pollutant load and natural recovery of the Spanish Harbour ecosystem to occur if reductions in upstream sources were reduced. Results from a 2008 metal loading rates survey will be used to provide a more accurate estimate of the expected recovery timeframe.

In addition, further monitoring is required to better understand the extent and risks of dioxin and furan contamination within sediment off Aird Island's north shore, just outside the Area of Recovery's boundary in the Whalesback Channel. The source of dioxins and furans was a bleaching process used at the Espanola pulp and paper mill. That process has not been used since the mid-1990s, thus virtually eliminating these substances entering waters in the Area in Recovery.

Status of Beneficial Use Impairments

The tables below summarize, for each of the three remaining beneficial use impairments in the Spanish Harbour Area in Recovery, their status as of September 2010; key actions taken by various partner agencies and organizations under the Remedial Action Plan; and future key actions planned by the partners as they work towards the full restoration of environmental quality and eventual delisting of the Area of Concern.

Status – IMPAIRED

Degradation of Benthos¹

Status: *Impaired*

Monitoring confirmed impairment of the benthic community structure, with decreased abundance and diversity at most test sites due to high metal concentrations, as well as high dioxin and furan levels in parts of the Whalesback Channel, just outside the Area in Recovery's boundary.

KEY ACTIONS

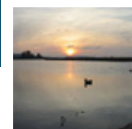
COMPLETED

- Completed benthic and water studies to provide information on the extent of contaminated sediment in the Area in Recovery (2003, 2005 and 2009)
- Undertook modelling of nickel and copper loading from upstream sources that concluded it would take 10 to 50 years for levels in the Area in Recovery to meet provincial guidelines if a 5% annual reduction in loadings were to occur (2006)
- Conducted survey of the loading rates for nickel and copper (2008)
- Implemented federal pulp and paper regulations and the provincial Municipal/Industrial Strategy for Abatement (MISA) regulations in the mid-1990s, which eliminated persistent toxic substances and addressed other problems associated with industrial discharges entering the Spanish River
- Completed upgrades at the Espanola paper mill between 1988 and 1999 to move away from chlorine bleaching, resulting in the virtual elimination of dioxins and furans entering the environment

REMAINING

- Review 2009 benthic assessment of sediment toxicity assessment
- Undertake sampling in the Spanish River and Whalesback Channel to better characterize sediment chemistry and ecological risks
- Review results of the 2008 metals loading survey
- Prepare an Area in Recovery Status Report outlining the current status of the environmental challenges, proposed delisting criteria and a comprehensive monitoring plan to track recovery

¹ *Benthos* and *benthic community* refer to the invertebrate organisms, such as worms, nymphs and insect larvae that dwell for all or part of their lives in the bottom sediments of lakes and rivers. Scientists often use the health and abundance of these organisms as indicators of contaminant toxicity and ecosystem health.



Restrictions on Dredging Activities

Status: *Impaired*

Dredging of sediment from the nearshore zone downstream of the mouth of the Spanish River is restricted due to elevated levels of metals that exceed provincial open water disposal guidelines.

KEY ACTIONS

COMPLETED

- Completed benthic and water studies to provide information on the extent of contaminated sediment in the Area in Recovery (2003, 2005 and 2009)

REMAINING

- Evaluate the prospects and benefits of developing an administrative controls document for the area to ensure future dredging is conducted in accordance with provincial and federal guidelines
- Prepare an area in recovery status report and a long-term monitoring plan to track progress

Restrictions on Fish and Wildlife Consumption

Status: *Impaired*

Restricted consumption of Brown Bullhead, White Sucker, Ling, Smallmouth Bass, Yellow Perch, Whitefish, Channel Catfish and Large Walleye is advised due to elevated levels of mercury, dioxins and furans. Potential risk to humans is mitigated by adhering to provincial sport fish consumption guidelines.

KEY ACTIONS

COMPLETED

- Issued fish consumption advisories for Spanish Harbour and Whalesback Channel as part of the larger North Channel area, due to dioxins, mercury and dioxin-like PCBs²
- Issued a consumption restriction advisory for Walleye from the Spanish River downstream of Espanola due to elevated levels of dioxins; the source of dioxins was a bleaching process at the pulp and paper mill that was eliminated in the mid-1990s

REMAINING

- Review data from the recent sport fish survey and collect and analyze additional fish from Whaleback Channel to characterize the extent of the local sport fish issues—i.e., assess whether advisories for Spanish Harbour are due to local sources, and whether they are more stringent than those advisories issued for open water in Lake Huron
- Prepare an area in recovery status report and a long-term monitoring plan to track progress

² Polychlorinated biphenyls (PCBs) are synthetic chemicals that have wide industrial applications. The manufacturing and importing of PCBs were banned in North America in 1977. PCBs are very persistent (long-lasting) in the environment and can be transported over long distances.

FOR MORE INFORMATION

Environment Canada:

www.ec.gc.ca/raps-pas

ISBN: 978-1-100-18058-8
Cat. No.: En164-22/10-2011E-PDF
PIBS: 8227e

Published by Environment Canada and the Ontario Ministry of the Environment

For information regarding reproduction rights, please contact Public Works and Government Services Canada at 613-996-6886 or at droitdauteur.copyright@tpsgc-pwgsc.gc.ca

Photos and map: © Ontario Ministry of the Environment, Environment Canada

© Her Majesty the Queen in Right of Canada,
represented by the Minister of the Environment, 2011

© Queen's Printer for Ontario, 2011

Aussi disponible en français